

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch
690 Walnut Ave. St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-001181**Date Inspected:** 09-Jan-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China

CWI Name:	ZPMC- Zhao Chen Sun, Chen Xi, CWB Present:			Yes	No	
Inspected CWI report:	Yes	No	N/A	Rod Oven in Use:	Yes	No N/A
Electrode to specification:	Yes	No	N/A	Weld Procedures Followed:	Yes	No N/A
Qualified Welders:	Yes	No	N/A	Verified Joint Fit-up:	Yes	No N/A
Approved Drawings:	Yes	No	N/A	Approved WPS:	Yes	No N/A
				Delayed / Cancelled:	Yes	No N/A

Bridge No: 34-0006**Component:** 77m, 89m, 114m and #1 deck mock-ups**Summary of Items Observed:**

On this date, the Caltrans Quality Assurance (QA) representative, John P. Tracy, conducted assessments while on site at Zhenhua Port Machinery Company (ZPMC) for Caltrans Project 04-0120F4-SAS. The following is the detailed review of the following observations:

Bay 1: Submerged Arc Weld (SAW) gantry welder is inactive. The Caltrans representative observed that the selected locations for macro etch testing were removed.

Bay 2 operations: The 77m mock-up has ongoing thermal operations for the Shielded Metal Arc Weld (SMAW) process under WPS-B-T-4113-2 for weld numbers MUSA-SA104-16 and -20 (longitudinal stiffeners to diaphragm attachment weld), which were made by ZPMC welder Liu Shouhai (066456).

Submerged Arc Weld (SAW) process was performed under WPS-B-T-2221-C-U2b-S by ZPMC welder Xia Yongliu (048882) for joint number MUA-MA1 D/F-4B, Plate C to Plate D attachment weld. ZPMC Certified Welding Inspector (CWI) Wu Zhi Feng was present and actively taking welding parameters on the mock run. No welding was witnessed on the joint. Observed values appeared to be in accordance with the criteria set forth within the contractual documents.

89m mock-up had welding operation ongoing. Upon visual inspection of external Plate E to Plate A weld joints, three tack welds had longitudinal cracks noted for their entire lengths. The defective in process welds were shown to ZPMC CWI Zhao Chen Sun.

The internal web plate connection, joint number MUB-MA21 G/J-60, had active ceramic heating pads on it in preparations for welding. The attachment is an American Society of Testing Materials (ASTM) A709 Gr345 to

WELDING INSPECTION REPORT

(Continued Page 2 of 5)

Gr485 fillet weld being made by SMAW process with THJ-506Fe electrode under WPS B-T-4112-3. No welding was observed on this joint.

Diaphragm to skin plate attachments weld numbers MUB-MA21 H/J-13, -14 and MUB-MA21 H/J-17, -18 were being made upon the Caltrans representatives arrival. Both sides of the joint were being welded at the same time, immediately causing the Caltrans representative to produce 200 degree centigrade and 232 degree centigrade Tempilstik brand temperature indicators. Both temperature indicators readily melted. The Caltrans representative asked for the ZPMC CWI, Ye Yong Jun, to take laser pyrometer temperature readings. The indicator provided temperature readings from 250 to 262 degrees centigrade. The ZPMC CWI stopped the four welders, (-17) Guo Dengyum (037997), (-18) Shen Yong (066257), (-13) Fu Yanjie (066268), (-14) Li Zhengxu (066179), immediately. The Caltrans representative asked the CWI if he was aware of the WPS parameters. He stated that he was. No logical explanation could be provided for the discrepancy.

114m upper and lower mock-up sections both have Flux Core Arc Weld (FCAW) process ongoing for exterior weld repairs under WPS-345-FCAW-1G(1F)-repair. The lower section has ZPMC CWI Chen Xi monitoring thermal parameters for ZPMC welder Chang Chuancang (053870) on weld joint number MUC-MA107 B/C-2A, Plate C to Plate D attachment weld.

The upper section has ZPMC CWI Xu Bing monitoring thermal parameters for ZPMC welder Bai Wenming (040434) on weld joint number MUC-MA106 B/C-3A, Plate B to Plate C attachment weld.

MUSB-MA25 and MUSB-MA26-1 and -2 shear links are idle and awaiting upper and lower web to flange and upper and lower stiffener to flange weld out.

89m MUSB-MA29 Cross Brace has had heat straightening operations performed plus flange to inner, and outer, stiffener attachment welds have been tack welded and have root passes already in place, however the component remains incomplete and inactive.

Included below are digital pictures that support the observations recorded within this report.



WELDING INSPECTION REPORT

(Continued Page 3 of 5)



WELDING INSPECTION REPORT

(Continued Page 4 of 5)



Summary of Conversations:

At the completion of the above stated operations, the ZPMC Certified Welding Inspectors, Wu Zhi Feng, Zhao Chen Sun, Chen Xi and Xu Bing, reported that the parameters followed and their noted results were found to be in accordance with the criteria set forth within the contractual documents.

On reporting date 01/08/2008, the Caltrans representative, Mr. Scott Croff, posed a scenario to me surrounding the joint configurations on the plate to plate attachment welds for the tower mock-up components. Through his observations, he believes that the ZPMC Ultrasonic Testing (UT) inspections are not providing adequate volumetric coverage through 100% of the weld.

The general notes in Table 6.2 of American Welding Society (AWS) D1.5-2002 provides insight in which the UT inspector shall utilized when indications are noted. The Caltrans representative spoke Caltrans Lead Inspector, Mr. Alfredo Acuna, on this issue. The two agreed that the profile should be mapped out on an Computer Assisted Drawing (CAD) program to obtain more factual data.

Data presented by Mr. Acuna clearly shows an issue. Volumetric weld coverage is not 100% under ZPMC's current practices for the joint configuration modeled. Further CAD modeling is in progress for the 90 degree angle (three per mock-up) and for the additional oblique angle on all 77m, 89m and 114m mock-ups.

The current CAD model was forwarded, via email, to Caltrans Task Leader, Mr. Robert Cuellar, and to Senior Resident Level III, Mr. Dave McClary, for disposition.

WELDING INSPECTION REPORT

(Continued Page 5 of 5)

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Tracy,John	Quality Assurance Inspector
Reviewed By:	Cuellar,Robert	QA Reviewer
